

Appl. No. 09/890,596
Amdt. dated Nov. 14, 2006
Reply to Office Action of July 18, 2006

Amendments to the Specification:

The following amendments are made to the substitute specification filed with the Applicants' prior amendment mailed October 17, 2005.

Please replace paragraph [0011] with the following amended paragraph:

[0011] To overcome these and other drawbacks of the prior art, the system according to the invention comprises a personal agent sub-system comprising a plurality of personal ~~agents~~assistants, each personal ~~agent~~assistant being arranged to perform tasks for only one single user. Moreover the system according to the invention comprises at least one service agent sub-system, comprising a plurality of personal service agents, each personal service agent being arranged for carrying out a specific sub-task for the user, and each personal service agent being connected to one of the personal ~~agents~~assistants. Finally, the system according to the invention comprises a coordinating sub-system, comprising one or more coordination processors for mutual coordination of actions of the personal service agents of different users.

Please replace paragraph [0012] with the following amended paragraph:

[0012] In this way, the inventive system provides for a regular and efficient architecture offering a much better controllability of the agents. Each user only communicates directly with his/her personal ~~agent~~assistant, which

subsequently passes on orders from the user to the relevant personal service agent and vice versa. In addition, problems regarding unreliable third parties are avoided since the personal agent-assistant and the ~~(personal)~~ personal service agents of a user exclusively operate for their own user. Since interaction with agents of third parties does not take place directly, but by way of a neutral processor, it is avoided that confidential information is inadvertently exchanged.

Please replace paragraph [0013] with the following amended paragraph:

[0013] By self-learning user behaviour, preferences etc., the personal assistants and/or personal service agents~~agent~~ will minimize interaction with the user, hence resulting in a reduction of system load. Moreover, an additional effect is that the quality of the service to the user will increase in course of time.

Please replace paragraph [0019] with the following amended paragraph:

[0019] FIG. 1 shows a personal agent system 1 according to the invention. System 1 is provided with a receptor section 2 for setting up a communicative connection with users, a central control unit 6 for distributing information flows, and an environment 10 of personal agents~~agents~~assistants, two environments 20, 30 having personal service agents, and an environment 40 for processing parts.

Please replace paragraph [0020] with the following amended paragraph:

[0020] The personal agent environment 10 of the system 1 in this example is provided with four personal ~~agents~~assistants 11, 12, 13 and 14. Each personal ~~agent~~assistant is allotted to a single user who may set up a connection exclusively with his own personal ~~agent~~assistant.

Please replace paragraph [0021] with the following amended paragraph:

[0021] For a user, his own personal ~~agent~~assistant is the only means by which he may utilize the system 1. The personal ~~agents~~assistants are therefore arranged to communicate with their own respective users, e.g., to receive orders or to pass on information obtained to the users. In addition, the personal ~~agent~~assistant is arranged for communication with personal service agents to be discussed below, e.g., for passing on orders to, or receiving results from, the personal service agents.

Please replace paragraph [0022] with the following amended paragraph:

[0022] In this example, there are two personal service-agent environments present, arranged as a secretary environment 20 having personal secretary agents in the form of secretaries 21, 22, 23 and, as a personal travelling-agent environment having travelling agents 31, 32 and 34. Personal service agents, such as the travelling agents and secretaries referred to above, operate

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exclusively for a single user. To achieve this, the personal service agents are connected to the personal ~~agent~~assistant of their own user. Having said this, the invention is not limited to application with two service-agent environments; any number of service-agent environments may be chosen.

Please replace paragraph [0023] with the following amended paragraph:

[0023] The processing-part environment 40 is provided with a processing part (coordination processor) in the form of an appointment maker 41. The appointment maker 41 is arranged for processing, based on data as supplied by a personal service agent such as, e.g., a secretary agent and, if necessary, making contact with other personal service agents. In this connection, the data of the personal service agents is treated confidentially. The appointment maker 41 is referred to by way of example of a processing part, and the invention is also applicable with other processing parts.

Please replace paragraph [0024] with the following amended paragraph:

[0024] A user is always provided with a personal ~~agent~~assistant, since the communication with the personal agent system takes place by way of the personal ~~agent~~assistant. In addition, each user is provided with at least a personal service agent, but the user does have the choice of the personal service ~~agent~~agent(s) he prefers to use. Since the user chooses the functions required by him,

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there occur no unused elements in the system. As a result, the system is kept as small as possible, and therefore operates efficiently.

Please replace paragraph [0025] with the following amended paragraph:

[0025] The personal ~~agent~~assistant 11 disposes of two personal service agents, i.e., a secretary agent 21 and a travelling agent 31. The secretary agent 21 is implemented in the form of an independently operating program which is especially arranged for carrying out specific tasks, in this case carrying out secretarial tasks such as, e.g., managing the agenda of the user and making appointments with third parties. The travelling agent 31 is also implemented in the form of an independently operating program which is especially arranged for carrying out specific tasks, in this case, by way of example, planning a travelling schedule.

Please replace paragraph [0026] with the following amended paragraph:

[0026] Since the user is permitted to choose which tasks he wants to have the personal agent system carry out, not all possible service personal agents need be allotted to a personal ~~agent~~assistant. Thus, the personal ~~agent~~assistant 13 is only provided with a secretary agent 23, and the personal agent 14 is only provided with a travelling agent 34.

Please replace paragraph [0027] with the following amended paragraph:

[0027] Because in the system according to the invention, the personal ~~agents~~assistants and personal service agents are capable only of communicating with predetermined parties according to fixed rules, therewith determining a social hierarchy, the reliability of the system is guaranteed. Because the hierarchy also prevents unnecessary communication, the burden on the system is reduced. Therewith, a personal agent system is obtained which is reliable, purposeful and efficient to users.

Please replace paragraph [0031] with the following amended paragraph:

[0031] The personal ~~agents~~assistants 11, 12, 13 and 14, as well as the personal service agents 21, 22, 23, 31, 32 and 34 are implemented as independently operating programs such as, e.g., an agent. Such programs are generally known, so that for briefness' sake there is refrained from a detailed description.

Please replace paragraph [0032] with the following amended paragraph:

[0032] In operation, a first user makes contact, by way of a personal computer 60, with the receptor section 2 of the system 1. The receptor section 2 provides a communication channel to the central control unit 6 which, based on the identity of the first user, locates its associated personal ~~agent~~assistant 11, and sets up a

connection. In this example, the central control unit 6 is implemented with an address book with location data of all parts of the system 1. The various parts of the system are capable of obtaining, at the central control unit 6, the data required for making contact with another part. Based on the data present within the central control unit 6, it may decide whether or not to provide information to a part in question; as a result, the central control unit 6 protects the hierarchy within system 1. Therewith, it is also achieved that confidential data is not supplied to unreliable parties.

Please replace paragraph [0034] with the following amended paragraph:

[0034] A first user then passes on to his ~~agent~~assistant 11 that he wants to make an appointment with, e.g., a second and a third user on a point in time X and a location Z.

Please replace paragraph [0035] with the following amended paragraph:

[0035] The ~~agent~~assistant 11 passes on the information relating to the appointment to the secretary agent 21, who is also associated with the first user. The secretary agent 21 analyzes the information and makes contact with a processing unit 41 operating as an appointment maker, with the instruction of making an appointment for the first, second and third users at the point in time between X and Y and location Z. The appointment maker 41 then makes contact with the ~~secretaries~~secretary agents 22 and 23 of the

second and third users, respectively. ~~Secretaries~~Secretary agents 22 and 23 check whether the appointment in question is permitted to take place, based on the agenda of their respective users. Both ~~secretaries~~secretary agents 22 and 23 pass on their wishes relating to the time and place to the appointment maker 41, who subsequently, based on the wishes of all secretaries involved, determines the optimum appointment. In this connection, the location and time offering the best solution for all users are sought. For all those involved, the most acceptable point in time proves to be X' and for the location Z'. Having said this, in another modification of the embodiment processing parts may also be subject to other criteria in processing data from service agents. In the present example, the wishes of a specific user might prevail over those of other users, e.g., since that user is available only at, e.g., a specific number of points in time, or is bound to a specific location.

Please replace paragraph [0036] with the following amended paragraph:

[0036] The appointment maker 41 passes on the information on the appointment determined by him on point in time X' and location Z' to the ~~secretaries~~secretary agents 21, 22 and 23, who note the appointment in the agenda of the users in question and notify the associated ~~agents~~assistants 11, 12 and 13 of the appointment. When their respective users makes contact again, the ~~agents~~assistants 11, 12 and 13 will notify those users of the appointment.

Please replace paragraph [0037] with the following amended paragraph:

[0037] The ~~agent~~assistant 11, which has been notified of the information of the appointment in the meantime, now notifies the travelling agent 31 associated with it of the appointment with the instruction of drawing up a travelling schedule with which the user will arrive at the appointed location at the appointed time. The travelling agent 31 then draws up the required travelling schedule and passes it on to the ~~agent~~assistant 11, who will pass on that schedule at a next contact with the user. In a modification of the embodiment of the invention, the personal service agents of a user may directly exchange specified information, apart from the option referred to above of exchanging information by way of the ~~personal agent~~coordination processor. In this connection, the personal service agents must be aware of each other's existence and options. A secretary of the travelling agent of a user might hear, e.g., what the travelling time between two locations amounts to, in order to be capable, e.g., of better managing the agenda of the user in this way. Since both personal service agents operate exclusively for the same user, problems relating to confidential data are avoided. Due to the direct communication between the personal service agents, the burden on the system is reduced.

Please replace paragraph [0039] with the following amended paragraph:

[0039] In a modification of the embodiment of the invention, the personal ~~agents~~assistants are provided with a

self-learning module which is arranged to learn from the interaction with the user and to adjust the behaviour of the agents thereto. Such modules are formed by a computer program and are generally known. Since the personal ~~agent~~assistant is capable of adjusting itself to the wishes of the user, the user receives a better service rendered by the personal ~~agents~~assistant and, in doing so, the amount of communication is reduced, which further decreases the burden on the system.

Please replace paragraph [0040] with the following amended paragraph:

[0040] In another modification of the embodiment of the invention, the personal service agents are additionally provided with such a self-learning module, so that the personal service agents, too, achieve the advantages referred to above. In addition, it is possible here to have the personal ~~agent~~assistant exchange learning information with the personal service agent in question in order thus to accelerate the learning process.

Please replace paragraph [0041] with the following amended paragraph:

[0041] In a further modification of the embodiment, it is possible that the self-learning modules of personal ~~agents~~assistants within an agent environment exchange learning information in order thus to learn from other personal ~~agents~~assistants. This may take place, e.g., by having the programs which constitute the ~~agents~~personal assistants communicate among themselves. For this purpose,

the user must expressly give his permission to his personal agentassistant in advance, and in this connection indicate that the agentassistant is permitted to gain contact with agentspersonal assistants of third parties and indicate which personal information the agentpersonal assistant may liberate to third parties. Furthermore, it is possible to indicate with which agentspersonal assistants the agentpersonal assistant of the user is permitted to communicate. Through this selective communication, confidential information of the user is prevented from being inadvertently passed on, as a result of which the trust of the user in the agent will increase. In this connection, the data traffic between the agentspersonal assistants is limited to the required amount, so that the system is not unnecessarily burdened. Such an exchange of learning information is also possible within an environment of personal service agents in the way described above.

Please replace paragraph [0043] with the following amended paragraph:

[0043] In an exemplary embodiment of the invention, a personal agentassistant may be formed for a new user at the first instance of use of the personal agentassistant system. This may be effected, e.g., by making a copy of a generic personal agent program, and then personalizing the copy by, e.g., adding personal data of the user to the program. In the same way, the user may initiate the personal service agents desired by him. The agentpersonal assistant with associated personal service agents created in this manner may then, e.g., be added to the central control unit and thereby be ratified.